LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. No amendments have been made.

1-34. **(Canceled)**

35. **(Previously presented)** A method for growing a thin film on a substrate by exposing the substrate in a reaction chamber defined by a plurality of walls to alternate surface reactions of vapor-phase reactants, comprising:

controlling a chamber wall temperature of at least those portions of the chamber walls that are exposed to the vapor-phase reactants;

loading the substrate onto a substrate support structure inside the reaction chamber;

controlling a substrate support temperature independently of the chamber wall temperature; and

alternately and sequentially feeding at least two vapor phase reactants into the reaction chamber

wherein the substrate support temperature is maintained at a first temperature and the chamber wall temperature is maintained at a second temperature different from the substrate support temperature and, wherein a difference between the first temperature and the second temperature is selected to maintain a lower rate of atomic layer deposition (ALD) film growth upon the chamber walls as compared to the substrate.

36. **(Canceled)**

37. **(Previously presented)** The method of Claim 35, wherein the chamber wall temperature is maintained higher than the substrate support temperature.

38. **(Original)** The method of Claim 37, wherein the chamber wall temperature is controlled at a level low enough to prevent thermal decomposition of the reactants.

39. **(Previously presented)** The method of Claim 35, wherein the chamber wall temperature is maintained lower than the substrate support temperature.

40. **(Original)** The method of Claim 39, wherein the chamber wall temperature is controlled at a level high enough to prevent condensation of one of the reactants on the wall.

41. **(Original)** The method of Claim 39, wherein the chamber wall temperature is controlled at a level high enough to prevent physisorption of one of the reactants on the wall.

42. **(Original)** The method of Claim 39, wherein one of the reactants is water and the wall is maintained at a temperature of 200°C or higher.

43. **(Previously presented)** The method of Claim 35, wherein the chamber wall temperature is maintained higher than a temperature of the reactants as they enter the reaction chamber.

44. **(Previously presented)** A method for growing a thin film on a substrate by exposing the substrate in a reaction chamber defined by a plurality of chamber walls to alternate surface reactions of vapor-phase reactants, comprising:

loading the substrate onto a substrate support structure inside the reaction chamber;

maintaining the substrate support at a first temperature by means of a first temperature controller;

maintaining at least portions of the chamber walls that are exposed to the vapor-phase reactants at a second temperature different from the first temperature by means of a second temperature controller; and

alternately and sequentially feeding at least two vapor phase reactants into the reaction chamber;

wherein the second temperature is selected to lower a rate of atomic layer deposition (ALD) film growth upon the walls relative to the substrate.

45. **(Original)** The method of Claim 44, wherein the second temperature is maintained higher than the first temperature.

46. **(Original)** The method of Claim 45, wherein maintaining the first temperature comprises removing heat from the substrate support.

47. **(Original)** The method of Claim 46, wherein removing heat comprises circulating a fluid through the substrate support.

48. **(Original)** The method of Clam 44, wherein the second temperature is maintained lower than the first temperature.

49. **(Canceled)**

50. **(Previously presented)** A method for preventing unwanted deposition on walls of an atomic layer deposition reaction chamber, comprising controlling a temperature of a substrate and independently controlling a temperature of at least those portions of the chamber walls exposed to reactants, such that a rate of deposition by self-limited atomic layer deposition on the substrate is maximized while self-limited atomic layer deposition (ALD) film growth on the walls is reduced relative to controlling a temperature of the substrate alone.

51. **(Original)** The method of Claim 50, wherein controlling the chamber wall temperature comprises heating the chamber walls.

52. **(Original)** The method of Claim 50, wherein controlling the substrate temperature comprises heating the substrate.

53. **(Original)** The method of Claim 50, wherein controlling the wall temperature comprises maintaining the wall temperature in a range to accomplish atomic layer deposition upon the walls.

54. **(Original)** The method of Claim 50, wherein controlling the wall temperature comprises maintaining the wall temperature in a range to avoid condensation and physisorption of reactants upon the walls.

55. **(Original)** The method of Claim 54, wherein controlling the wall temperature comprises maintaining the wall temperature in a range to avoid thermal decomposition of reactants upon the walls.

56. **(Original)** The method of Claim 55, wherein controlling the wall temperature comprises maintaining the wall temperature in a range to reduce film growth rates upon the walls relative to deposition rates upon the substrate.

57. **(Previously presented)** A method for growing a thin film on a substrate by exposing the substrate in a reaction chamber defined by a plurality of walls to alternate surface reactions of vapor-phase reactants, comprising:

controlling a chamber wall temperature of at least those portions of the chamber walls that are exposed to the vapor-phase reactants;

loading the substrate onto a substrate support structure inside the reaction chamber;

controlling a temperature of the substrate independently of the chamber wall temperature;

alternately and sequentially feeding at least two vapor phase reactants into the reaction chamber; and

maintaining the temperature of the substrate within an ALD temperature window such that approximately one monolayer is deposited per full cycle and maintaining the chamber wall temperature within a temperature window that is either (i) above a lower temperature limit at which condensation takes place on the chamber walls and below the ALD temperature window or (ii) below a high temperature limit at which thermal decomposition causes deposition on the chamber walls and above the ALD temperature window.